

ABSTRACT

A silicon-on-insulator device structure having a silicon-on-insulator substrate, a transistor and a control transistor is provided. The transistor and the control transistor are disposed on the silicon-on-insulator substrate. The transistor and the control transistor share a common source region. The drain region of the transistor is electrically connected to the main body of the transistor. By forming of a control transistor between the source terminal and the main body of the transistor and switching the control transistor on or off on demand, the silicon-on-insulator device embodies the advantages of both floating-body effect and body-tied characteristic.